

REMARKS

Reconsideration and allowance in view of the foregoing amendment and the following remarks are respectfully requested. Claims 1, 5, 17-19, 32-33, 36-40 and 42-43 are amended without prejudice or disclaimer. Claims 34-35 and 45 are cancelled without prejudice or disclaimer.

Claim Objections

The Office Action objects to claim 35. Applicant has cancelled claim 35 rendering this objection moot.

Rejection of Claims 1-35 Under 35 U.S.C. §112

The Office Action rejects claims 1-35 under 35 U.S.C. §112, second paragraph, being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Applicant has amended claim 1 to recite that the constraints and guarantees are related to the use of the plurality of networked computing devices within the compute environment. Applicant therefore submits that the reference to constraints and guarantees is now clearly related to the use of the plurality of networked computing devices within the compute environment. A non-limiting example of constraints and guarantees associated with a first request may be that a user may submit a request for a reservation of resources which may include a request for 20 nodes for one hour. Paragraph [0033] of the specification discusses policies which specify how and when jobs start. These policies may limit or constrain for example the number of nodes or the amount of time a user may request and they may also relate to a guarantee for the user of certain capabilities of the compute environment. For example, there may be a guarantee associated with a request that compute resources will be available within one hour of the request for resources. These are non-limiting examples of

constraints and guarantees that can be associated with the requests. Applicant submits that such constraints and guarantees would be understood by one of skill in the art.

With respect to claim 32, Applicant has amended this claim to recite that the generated co-allocation map represents a set of resources associated with at least one of the first request or second request. Eliminating the word “exclusive” clarifies this issue.

With respect to claim 33, this claim is amended to recite wherein the first request specifies exclusivity of the set of resources for the first request. Therefore, this more clearly specifies that the set of resources will be exclusive for that first request. An example of this is include a set of processors or nodes that are set aside for exclusive use for workload submitted under the first request. Therefore, this clarifies what is meant by this claim limitation.

Rejection of Claims 36-45 Under 35 U.S.C. §101

The Office Action rejects claims 36-45 under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter. Applicant has amended claim 36 to recite a processor and a means that can control the processor to perform certain steps. Applicant submits that this clearly ties claim 36 and its dependent claim to a physical thing.

With respect to claim 38, this claim is also amended to recite a processor and modules that control the processor to perform certain steps. Therefore, Applicant submits that claim 38 and its dependent claims 39 comply with 35 U.S.C. §101.

Claim 40 is amended to recite that the instructions cause the computing device to perform steps comprising receiving, analyzing, etc..... Applicant submits that this amendment clearly now ties the steps to a computing device.

With respect to claim 42, Applicant has amended the limitations to recite performing the various steps via a processor. Accordingly, Applicant submits that this explicitly recites a physical thing and thus claims 42 and its dependent claims comply with 35 U.S.C. §101.

Rejection of Claims 1-10, 16, 23, 27-34 and 36-45 Under 35 U.S.C. §103(a)

The Office Action rejects claims 1-10, 16, 23, 27-34 and 36-45 under 35 U.S.C. §103(a) as being unpatentable over Kan (U.S. Patent No. 5,355,508) (“Kan”). Applicant respectfully traverses this rejection and has provided some amendments to the claims in order to further delineate the invention from the prior art. Applicant shall explain in the following analysis why some of the claim limitations unamended are not taught or suggested in the reference. Therefore, Applicant submits that because not all of the original claim limitations are taught in the art, the amendments are not made for patentability but to clarify the claims.

First, the Office Action asserts that with respect to claim 1 that the step of receiving a first request for a reservation for a first type of resource is taught in Figure 1 and column 6, lines 23-27. Applicant notes that the SIMD type processing unit 50 is recited in Figure 1 as well as the language in column 6 which states that “the SIMD type parallel data processing unit 50 includes a system controller 11, an output controller 102, an input controller 103 and 4096 processing elements 108.” Applicant respectfully submits that this reference to these various modules say nothing with regards to receiving a first request for a reservation for a first type of resource. Notably, one of the glaring limitations that is not taught or mentioned in this portion of the reference is the request being for a “reservation” of resources. The concept of a reservation for a first type of resource at a future time is not suggested or found in the cited portion of the reference. Therefore, this first limitation unamended is not taught or suggested in the reference.

The next limitation of analyzing constraints and guarantees associated with the first request is asserted to be taught at column 7, lines 16-18. Here, the reference teaches merely that 65, 70 and 73 are portions where calculations are performed by the MIMD type parallel data processing unit 51. This is merely a generic reference to calculations that are done by MIMD. There is no mention of constraints and guarantees associated with the first request that are

analyzed. Applicant has however amended this step to recite that the first constraints and guarantees relate to the use of the plurality of networked computing devices within the compute environment. As has been explained above, these constraints and guarantees have particular meanings in the recited compute environment. In this context, such constraints and guarantees are not taught by the general process of performing calculations in the MIMD type parallel data processing unit 51. Accordingly, this limitation is not taught or suggested.

Next, the Office Action asserts that the step of identifying a first group of resources that meet the first request is taught in column 4, lines 35-37. This portion teaches that when a user uses a library having a certain function and the library is called, the most suitable parallel data processing unit is specified. This call to a library is not the equivalent of a first request for reservation of a first type of resource. Thus, this calling of a library and then identifying a most suitable data processor is not the equivalent of identifying a first group of resources that meets the first request.

The limitation of receiving a second request for a reservation for a second type of resource is asserted to be taught by processing unit 51 in column 6, lines 52-55. Here, the reference teaches that “the MIMD type parallel data processing unit 51 consists of a system controller 31, input/output system controllers 104 and 105, eight processing elements 109 and a bus 107 for connecting these.” Again, there is no mention of a reservation. Therefore, the concept of receiving a second request for a reservation of a second type of resource is not taught or suggested merely by the reference of the data unit and the structure that is shown in Figure 1. Therefore, this feature is not taught or suggested in the reference.

Next, analyzing constraints and guarantees associated with the second request as has been noted above is not taught or suggested in column 7, lines 16-18.

Similarly, identifying a second group of resources that meet the second request is not taught in column 4, lines 35-58.

Applicant further submits that the concept of generating a co-allocation map between the first group of resources and the second group of resources is also not taught in columns 7 or 8. The Office Action asserts that the hybrid parallel processing mode, the system requires to use both SIMD and MIMD processing elements concurrently. Applicant has made one amendment that helps clarify and distinguish this concept. Applicant has amended the claim to recite receiving a first request for a reservation for a first type of resource in a compute environment comprising a plurality of networked computing devices. Applicant submits that therefore claim 1 recites a first request for a first type of resource in the compute environment and a request second type of resource in the compute environment. Applicant does note that both units 50 and 51 and Figure 1 of Kan are both the same “type” of resource. Namely, they are both processors. Column 2, line 16 teaches that an SIMD type large scale parallel processing unit is suitable for some models. A medium scale MIMD type parallel processing unit is suitable for models that do not require complex processing. Applicant submits that since these are both processors, the concept of claim 1 with respect to a first type of resource and a second type of resource is not taught or suggested in the reference. Claim 5 makes this clear inasmuch as the first and the second types of resources are drawn from the list including compute resources, disk storage resources, network bandwidth resources, memory resources, and licensing resources.

Applicant also respectfully traverses the analysis on page 5, section 12 in which the Office Action states “it would have been obvious of a person of ordinary skill in the art at the time of the invention was made to have realized that Kan’s system for allocating appropriate resources for different requests is in fact the same as Applicant’s claimed co-allocation map.” Applicant respectfully submits that this is an unusual Section 103 analysis in which there is only

a single reference cited and the obviousness analysis essentially concludes with one of skill in the art simply would “realize” that the Kan’s disclosed system is the same as Applicant’s invention. Applicant respectfully traverses this analysis as being incomplete in failing to establish a prima facie case of obviousness. Accordingly, Applicant respectfully submits that it is not as obvious as it is made out in the Office Action. For example, the reference teaches that in column 7, line 32, that the processor simply makes it possible to use the SIMD type parallel data processing unit and the MIMD type parallel data processing unit independently and simultaneously in order to process different data. The generation of a co-allocation map between the first group of resources and the second group of resources is recited. Therefore, inasmuch as the requests are for a reservation of a first or second type of resource in the future, the step of generating a co-allocation map certainly differs from Kan’s system which merely executes via the system controller the programs that use the SIMD and MIMD processors simultaneously.

Applicant therefore submits that there are numerous reasons why claim 1 is patentable and in condition for allowance. These include the fact that the compute environment is amended to recite comprising a plurality of networked computing devices. It is clear from Figure 1 and the discussion in Kan that these are not network devices but that unit 50 and 51 share a common memory bus. Column 3, line 28 explains that there is the TRAC (Texas Reconfigurable Array Computer) of the University of Texas and the PASM (Partitionable SIMD/MIMD System) of Purdue University which use this multiple architecture as part of a hybrid computer. As such, because these two processing units are on the same system sharing the same common memory bus, they are not networked computing devices as is recited in claim 1.

Plus, Applicant notes the various limitations set forth above that are not taught or suggested by Kan. Applicant therefore submits that we have fairly provided substantive

arguments and claim amendments which establish the patentability of claim 1. Applicant submits that dependent claims 2-34 are also patentable and in condition for allowance.

Claim 36 has been amended in a similar manner to claim 1. Therefore, Applicant submits that this claim and its dependent claim 37 are patentable and in condition for allowance.

Claim 38 is also amended in a similar manner to claim 1. Therefore, Applicant submits that this claim and its dependent claim 39 are patentable and in condition for allowance.

Claim 40 is also amended in a similar manner to claim 1. Therefore, Applicant submits that this claim and its dependent claim 41 are patentable and in condition for allowance.

Finally, claim 42 is amended in a similar manner to claim 1. Therefore, Applicant submits that this claim and its dependent claims 43-44 are patentable and in condition for allowance. Applicant has cancelled claim 45 without prejudice or disclaimer.

Rejection of Claims 11-15, 17-22 and 24-26 Under 35 U.S.C. §103(a)

The Office Action rejects claims 1-10, 16, 23, 27-34 and 36-45 under 35 U.S.C. §103(a) as being unpatentable over Kan in view of Rottoo (WO 98/58518) ("Rottoo"). Applicant respectfully traverses this rejection and submits that these claims are patentable and in condition for allowance over Kan in view of Rottoo. Applicant has amended the parent claims to each of these claims and established the patentability of these parent claims. Accordingly, Applicant submits that these dependent claims are also patentable and in condition for allowance.

Applicant also traverses the conclusion that one of skill in the art would likely combine Rottoo with Kan. Rottoo is non-analogous art inasmuch as it involves telecommunication reservation acceptance systems and controllers. Kan relates to a parallel data processing system with particular features as has been noted above and is found throughout this reference. Applicant submits that the art that is involved in each of these cases is fundamentally different and there is no one person of skill in the art that would bridge both technologies. Therefore, for

this additional reason, Applicant submits that these are clearly different areas of technology and one of skill in the art would not likely incorporate the teachings of Rottoo into the method of Kan and for the purposes set forth on page 13 of the Office Action. Accordingly, Applicant submits that claims 11-15, 17-22 and 24-26 are patentable and in condition for allowance.

CONCLUSION

Having addressed all rejections and objections, Applicant respectfully submits that the subject application is in condition for allowance and a Notice to that effect is earnestly solicited. If necessary, the Commissioner for Patents is authorized to charge or credit the **Novak, Druce & Quigg, LLP, Account No. 14-1437** for any deficiency or overpayment.

Respectfully submitted,

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